ARCHITECTURE AND SOCIETY

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ABSTRACT

It has been observed that the application of ethnographic parallels goes a long way in the interpretation of architectural remains, more particularly of the Protohistoric period of the third-second millennium BCE. Although the structural remains at such large sites as Mohenjo-daro and Harappa have been adequately described, they can be better appreciated if they are studied in the context in which they occur, from which we can draw important inferences about Protohistoric society. Thus, for instance, the town plan of Dholavira (Gujarat) throws a flood of light on Harappan social organization. The same contextual approach also allows us to draw far-reaching conclusions about the modest wattle-and-daub structures of the post-Harappan rural communities that lived in the second millennium BC. Interestingly, similar structures are still in use in India and they afford a deep insight for interpreting them.

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1. INTRODUCTION

India is incredibly rich in architectural edifices of the Historical period, particularly religious ones, but our knowledge of Pre- and Protohistoric architecture is extremely poor, for the simple reason that few large-scale excavations have been carried out, and fewer reports still are available. Reports of some Harappan excavations have been published, but the same cannot be said of post-Harappan settlements as, in a majority of cases, they have been small-scale digs undertaken
for the purpose of building cultural sequences. However, the minor scraps of architectural evidence that are available reveal some interesting facets of the life of Protohistoric peoples.

The architectural remains at such large sites as Harappa and Mohenjo-daro have been described in detail by their excavators. These architectural remains are 'texts', and their function can be understood only from the context in which they occur (Moreland 2001). This is what is now known as contextual archaeology (Barret 1987), and it constitutes a defining feature of Post-Processual archaeology, the roots of which can be traced back to the 'conjunctive' approach advocated by Walter Taylor (1948).

Ian Hodder (1995) has elaborated contextual archaeology as the inter-weaving and connecting of things. The meaning is not inherent in any artefact, but derives from the context in which it occurs, that is, from its relationship with other objects of material culture. To an archaeologist, an artefact is a text, and his task is to recover the meaning encoded in it. This can be done by contextualizing archaeological data. The present study is an attempt to elicit information relating to social conditions as these are encoded in the architectural remains of the Protohistoric period. It is an exercise in social archaeology.

Man has been occupying natural caves and rock-shelters from the remotest past, but once he began to produce his own food, sedentary life became possible. The antiquity of settled life in the Indian subcontinent now goes back to about ten thousand years, since when the continuous development of cultures that eventually flowered into the Harappan civilization can be traced.

Excavations at Mehrgarh (in Balochistan, Pakistan) revealed that the first inhabitants of the site lived in mud-brick structures. This Neolithic phase continued for over two millennia, from 7000-5000 BC, after which a new group of people arrived at the site, probably from the neighbouring Afghanistan (Jarrige 1993).

This new group of people introduced many new elements of culture such as wheel-madepainted pottery, use of copper, worship of the mother goddess, and so on. This Chalcolithic phase has been labelled the Togau culture (4500-3800 BC) (Possehl 1999: 400 ff) which is characterized by developed villages. The people lived in large, rectangular, multi-roomed houses of mud brick that had hearths and underground ovens (tandoor), and small, compartmental brick-built storage spaces. The mud bricks show evidence of approaching the standard size of 4:2:1, which was perfected later, in urban Harappan times. The Togau culture spread across the greater Indus valley, and there is every possibility that its remains lie buried in the unexcavated strata of what Mortimer Wheeler called 'The unplumbed depths of Mohenjo-daro'.

The succeeding Hakra culture (3800-3200 BC) evolved out of the Togau culture, and spread into the Sarasvati basin in the east (presently the Ghaggar basin in India and Hakra basin in Pakistan). The people lived in flimsy mud huts and pit dwellings, which had wooden posts at the top, along the periphery, for supporting the roof. In India, the remains of this culture have been noticed at Kunal (in Haryana) (Khatri and Acharya 2005). This phase is also represented at Harappa.

The roots of the Early Harappan culture (3200-2600 BC) can be traced in the Hakra culture, and it later flowers into the Indus/Harappan civilization. Perhaps the most important Early Harappan settlement was at Kalibangan (Rajasthan), on the left bank of the Sarasvati. The culture
was first encountered in Wheeler's excavation at Harappa, and later at Kot-diji in Sindh (Wheeler 1968). It actually constitutes the formative stage of the Indus civilization, to which it contributed substantially.

2. THE INDUS CIVILIZATION

The Indus civilization (c. 2600-1900 BC) marks the flowering of the Indian genius in every field of human activity. It developed a distinct architectural style, which is exemplified by its elaborate town-planning and its unique method of construction made possible by the novel brick size of 4:2:1. Although Harappan cities were planned differently in different regions, some of them seem to have followed a standardized plan, which divided the township into four different segments.

There were three separate localities at Kalibangan, with one more outside the fortified area (Lal 1997: 118 ff, Fig. 6.7). Dholavira, too, had four distinct areas (Bisht 1991), and there is little doubt that the layout of Harappa and Mohenjo-daro was not very different.

Mohenjo-daro was a brand new city planned and built like Chandigarh long after it was abandoned by its earlier inhabitants, whose remains lie under the subsoil water. It was probably the largest and most prosperous city of the ancient world, as is evident from the impressive buildings of baked brick on stone foundations. The multi-roomed, and multi-storied mansions had tiled floors, paved baths, covered wells and an underground drainage system. The average house size was between 100 and 200 sq m, which compares favourably with upper-middle-class homes of our own times (Sarcina 1978-79).

The general plan of the metropolis of Mohenjo-daro reveals that the citadel was in the west, while the lower city in the east was divided into three parts. Of these, the DK area in the north was probably the industrial area with workshops and kilns, which yielded hoards of bronze artefacts. In the south, the HR area was the elite locality, with elegant, spacious houses, some of which contained gold and jewellery hoards. In between these two areas was the middle VS area, with houses of common people built along poorly aligned streets. There does not appear to have been much difference in the standard of living of people in the metropolitan centres. Some houses of Mohenjo-daro were quite spacious, about 300 sq m in floor area. The architectural survey of Mohenjo-daro indicates that special groups lived in well-defined areas (Jansen 1979: 257).

The town plan of Dholavira is much more distinctive than any other regional centre, such as Banavali or Lothal (Fig. 1). Here, the entire habitation was divided into four distinct parts, one each for rulers, noblemen, the middle class and lower class respectively. All four parts were enclosed in a fortification wall, though the first three had, in addition, separate enclosure walls, making them ghetto-like units (Bisht 1991). The obvious implication is that this was a class-structured society with a rigid hierarchical order whereby residents of different areas were not supposed to mix with each other. This arrangement anticipates the concept of pollution, which became a distinguishing feature of the latter-day Hindu society. This surmise gains strength from the heaps of broken goblets near the Well Room LXIII in HR-B area of Mohenjo-daro, which was meant for storing water (Marshall 1931: I, 205).
The division of the township into four parts suggests the later organization of Hindu society characterized by the four varṇas, which originated in the Vedic period. The varṇa of a person was determined by his profession and could be changed; it was not rigid like caste (jāti), which was determined by birth and was not changeable. We need not enter here into the controversy of whether the Harappans were Aryans or not; we can only infer that a four-fold division of society existed in India even in the pre-Vedic period, which the Aryans may have emulated later.

Surprisingly, an exactly similar social organization was prevalent at Altyn Depe, an ancient town in Turkmenistan that was occupied during the Bronze Age, from 4000-2300 BC. There were four different parts in the settlement, the occupants of which had different dietary habits, different funerary customs, and even different rules of descent. Their groups were identified as (1) chief priests, (2) bureaucrats, (3) farmers and herders, and (4) craftsmen and hunters (Masson 1988). The Altyn Depe evidence belongs to the late third millennium BC whereas the planned Harappan townships had come into existence from c. 2600 BC, or even earlier if the evidence from Rehman Dheri (Pakistan), which belongs to the early fourth millennium BC, is any indication.

The four-fold division of the Harappan township has been compared with that of the Rigvedic Aryans (Rv. X, 90, 12):
The notion that results from this archaeological data and its possible relationship to Rigvedic accounts is that the people of the Veda were part of, or highly influenced by, a Central Asian Bronze Age civilization in which the socio-political system was based on class. Each class was integrated into a symbiotic socio-political system which regulated the complexities of an increasingly urbanized culture, strongly based on agriculture and craft specialization.

However, during the heyday of the Central Asian Bronze Age there was contact between Inner Asia and the Indus River Valley, evidenced in the latter, for example, by such Harappan traits as pedestalled vessels, dice playing, cattle wealth, chieftainship, large scale public or elitist structures, clan sodalities, certain graphemic symbols, and the urbanizing process in its Indianized form. (Fairservis 1995: 210)

The Altn Depe evidence belongs to the late third millennium whereas a similar arrangement was in vogue in Harappan townships from about 2600-2500 BC. It is therefore highly likely that the Harappans may have influenced the Central Asians among whom, therefore, socio-political differences became more rigid. The inference gains strength from the occurrence of Harappan artefacts in Central Asia but the almost total absence of Central Asian antiquities in India at Harappan sites.

The division of society into four classes is no doubt significant and is almost identical with the varṇa system of the Rigveda (X, 90, 12). In this respect, Itavati Karve’s (1991: 47) observation is worth noting. According to her, something like caste was in vogue in India even before the arrival of the Aryans, but the varṇa system did not arise out of racial distinction. On the contrary, it was only a sequential order, as in an alphabet (varṇa), because all people worshipped the same gods and followed the same rituals from birth to death.

It is significant that the same pattern of town-planning was in vogue even in the Historical period in India. This is clear from the description of Vaishali (Bihar), which was the capital of an ancient mahājanapada and later the capital of the Lichchhavis (Deva and Misra 1961). Vaishali is a very extensive town site which was described in ancient literature; was divided into three parts, one each for brahmans, kshatriyas and vaisyas. Interestingly enough, these different localities can be identified as: Raja Vishal ka Garh, probably for royalty and kshatriyas; Kunḍa-grāma (modern Basokund) for brahmans; and Vānījjya-grāma, obviously for vaisyas. There is a fourth locality, too, known as Kolhua. Vaishali is thus an ideal site for testing the hypothesis that different localities were occupied by people belonging to different varṇas. This historical evidence compares favourably with the layout of Harappan townships.

Similarly, there was a tank at Vaishali which, according to literary accounts, was used for ritual baths, and particularly on special occasions like royal consecrations. The Mohenjodaro bath may have been similarly used. Varāhamihira (Bṛhatastāṃhitā LIII, 70, 91; lxxii, 4), too, allots four different parts of a city to the four different varṇas, and Yuan Chwang confirms it (Watters 1904-05: I, 168).

Recent excavations at Harappa have yielded evidence pointing to the separation of different groups in society. The excavation of Mound E shows that it was occupied in the Mature Harappan phase by craftsmen, particularly those engaged in pottery manufacture, shell-cutting, flint-knapping, etc. There was clear evidence of craft specialization indicating that ‘these crafts
were extremely complex and involved technologies that would have been known only to a limited segment of the urban population' (Kenoyer 1992: 47).

In an earlier excavation, Wheeler (1968: 31 ff) found a whole street with stone mortars for de-husking grain and pounding it into flour. Stuart Piggott (1952: Chapters 6-7) had identified this area as slave quarters, whereas according to Iravati Karve (1991: 58) it was 'a street lived in by a cast group who specialized in pounding rice'. Even today, 'caste groups cluster together because such territorial grouping is operationally convenient since caste, as the dominant social institution, governs the direction and flow of social relationships' (Bose and Malhotra 1965: 173). At Mohenjo-daro, the DK area was occupied mostly by craftsmen and the same was the case in the Middle Town at Dholavira. Perhaps this is the origin of the caste system, because it has been argued that 'The caste structure promotes stability and continuity and is conducive to social stability for the handing down of technology within hereditary occupational groups and the spread through marriages within endogamous groups' (Ratnagar 1991: 12-19).

There is evidence to show that occupational skills were hereditary and the same may have been the case with priesthood (Malik 1979: 194). This was also a feature during the Historical period, and it continues to a great extent even today. The uniform pattern of planned areas and their division into specialized zones indicates the possibility of the continuity of tradition through descent. Prolonged occupation of residential quarters, too, points in the same direction (Krader 1978: 614).

Vedic Aryans are generally held responsible for the introduction of the caste system in India, but this is barking up the wrong tree. If they came from outside, then this system should have been prevalent in the land whence they came, but no such evidence is available to support it. If it they were indigenous, then the obvious inference is that the system must have existed here earlier in some form. Romila Thapar's (1934:220) observation in this context is significant.

It is curious that although the origin of the caste structure is frequently associated with the Aryan speakers, it occurs only in India and not in other societies which were also the recipient of the Aryan culture. It may therefore have been a pre-Aryan system which was reconstituted somewhat and described in later Vedic literature.

### 3. CHATUHŚĀLA HOUSES

The houses that have so far been unearthed in Harappan towns generally consist of rooms on either two, three or four sides around a courtyard. Some of these are identical with the *chatuhsāla* type of houses (Fig. 2), which type of plan survives even today in India. Moreover, even Buddhist vihāras conformed to this plan.

The *chatuhsāla* plan is well suited to the Indian environment as it affords protection and privacy to the occupants, particularly to women who can carry out their activities without any disturbance. It admits enough light and ventilation because of the large open courtyard, which is also very useful in India as much of domestic life is lived in the courtyard because of the hot, humid climate.

In the Late Harappan period, which is marked by de-urbanization, people lived in single-roomed houses and round huts. It has been observed that the circular plan is more suitable to arid
environments (Flannery 1972). In the second millennium BC, the climate was getting increasingly arid – an important cause for the decline of the Indus Valley civilization (Singh 1971) – which explains the preference for the round plan.

Archaeologists have devised certain methods to estimate populations and their requirements on the basis of the area occupied by structures at ancient sites. Walter A. Fairservis Jr. (1967) has applied these methods and has produced a noteworthy study. Demographic studies indicate that in large cities, a man occupies about 800 sq ft (74 sq m) of space. In that case, the population of Harappa and Mohenjo-daro, spread over an area of 100 acres, would be 41,250; and 25,812 acres of farmland would be needed to provide enough food, assuming a requirement of 2,000 calories per person per day. In addition, the population would require 28,813 acres for other crops such as cotton etc., besides 3,098 acres of pasture land. We have already noted that fired bricks were used on a large scale at Mohenjo-daro. Five million such bricks were used, which means that 400 acres of forest would have been required for firing bricks alone. For one hundred thousand bricks, one hundred babul (Arabia acacia) trees would be required. It is necessary that such interesting studies be carried out for more of our important ancient sites.

Fig 2 A chatusala house, Ajanta (first century BC)
The Harappans seem to have enjoyed undreamt of prosperity, in large measure due to their highly profitable trade with West Asia as far as Egypt. The imports were negligible and Harappan traders probably received gold and silver in exchange for their goods, as happened in Early Historical times. Such long-distance trade, which began in Early Harappan times c. 3000 BC, peaked by 2500 BC, when demand for Indian luxuries increased exponentially. The Harappans then started acquiring raw materials such as carnelian, ivory, shell, etc., from Saurashtra, and stored them at places like Surkotada, Desalpur and Pabumath, where they built strong, fortified settlements. The trade reached its zenith during the time of Sargon of Agade (c. 2350 BC), when the Harappans started to manufacture finished products in Saurashtra, where they established what in modern parlance can be called ‘industrial estates’ (for example, at Nageshwar for shell cutting, and at Kuntasi for copper objects and beads) (Dhavalikar et al. 1996).

Kuntasi is an extremely interesting settlement that has been excavated on a large scale. It is a very small site, hardly 2 ha. in extent, representing a port settlement which was occupied during Harappan (2500-1900 BC) and Late Harappan times (1900-1700 BC). A huge structure complex was uncovered at the site, enclosed in a massive double fortification wall, a light house(?), and an entrance protected by bastions, all stone-built, on the banks of the river Phulki. The complex was built on the chatuhśāla plan, with structures on four sides and an open area in the middle (Fig. 3). An entrance in the eastern part led to structures on both sides, which seem to have been occupied by workers, whereas in the west were better-built houses, probably for skilled craftsmen.
The industrial complex at Kuntasi was located in the east (Fig. 4), and the residence of the person in charge of the establishment was found in the same area. There were furnaces, kilns and storages in this part. In all these buildings, there was only one hearth or oven, and it seems therefore that there was a common kitchen for all. Of course, the chief had an independent four-roomed house with a separate kitchen. This arrangement suggests that the craftsmen were brought by the Harappans with them, but not their families. Was this a sort of forced labour, like the vishṭi (veṣh-bigār) of ancient times?

4. ARCHITECTURE OF THE VEDIC ARYANS

In any discussion of Protohistoric India, one cannot avoid the Aryan problem, more so because scholars of the 'Indigenists' school vehemently identify Vedic Aryans with Harappans. The author, for one, cannot accept this proposition for the simple reason that the horse, the favourite animal of the Aryans, which also played an important role in their religious beliefs, is conspicuously absent on Harappan seals, on which the entire animal world is otherwise represented. One is more inclined to identify the Late Harappans as the Vedic Aryans as they fit perfectly in the time-space frame of the Rigveda, which can be assigned to 2000-1400 BC on the basis of the occurrence of horse and the absence of iron. The locale of both cultures was the Sapta-Sindhu region, delimited by the Indus to the west and the Sarasvati to the east (Dhavalikar 2007).

The Rigvedic Aryans were a rural folk, their economy characterized by subsistence agriculture, cattle-keeping and hunting-fishing. There is a heavy concentration of Late Harappan settlements (Thakran 2000) in the upper basin of the Ghaggar (Sarasvati) of which only two have been excavated on a large scale, viz. Bhagwanpura in Punjab (Joshi 1993) and Hulas in Uttar Pradesh.
Pradesh (IAR 1978-79, 1979-90). The houses uncovered in these excavations were mud structures, some quadrangular on plan, while round, semi-circular and pit dwellings (gartā) also occur, which indicate seasonal settlement. The Late Harappan settlements thus answer to the description of a Ṛigvedic grāma, which originally connoted a group of huts that were occupied seasonally by semi-nomadic agro-pastoral communities with populations of about 100-200 souls (Nandi 1986-87:155). A large, multi-roomed building was exposed at Bhagwanpura which can be identified as of the dvi-pakṣā variety (Dange 1993); whereas sixteen round huts were traced at Hulas.

5. POST-HARAPPAN CHALCOLITHIC CULTURES

The Harappan civilization was on the decline from about 2000 BC, for which environmental degradation, dwindling foreign trade and over-exploitation of resources were responsible. The entire second millennium BC and the first half of the first millennium were marked by a drastic change in climate, which led to increased aridity. As a result, almost the entire subcontinent witnessed the rise of poor farming communities surviving on subsistence agriculture and stock-raising, supplemented by hunting-fishing. As aridity gradually increased, many people resorted to pastoral nomadism, of which we have very interesting evidence from the large-scale excavation at Inamgaon in Maharashtra (Dhavalikar 1989).

Settled life began in Maharashtra in the middle of the third millennium BC. At Kacthe (in Dhule district), the people appear to be semi-nomadic as their pit-dwellings (Fig. 5) and flimsy huts with sunken floors suggest (Dhavalikar et al. 1990b). But their contemporaries at Daimbad (in Ahmednagar district) were better off. Their houses were built in a haphazard manner, some large and some small. The most noteworthy structure among them is House No. 15, which was quite large (7 x 4.5 m). It was a single-roomed structure, divided into two by a partition wall, as is done today. It yielded a phallus-shaped agate stone, which suggests that it might have been the house of a priest who may also have been the village chieftain (Sali 1986: 87). In this context it may be stated that Śiva-liṅgas have been reported from urban Harappan levels at Kalibangan and Rakhi Garhi.

The arrival of the Harappans at Daimbad marks an important event because this is the southernmost settlement of the Indus Valley civilization. Although the excavated area was limited, the habitation seems to have been planned, with houses perfectly aligned in an east-west orientation.

The most important and unique of these was a complex consisting of Houses Nos. 16-21. This complex belonged to one family – probably the ruling family, as is suggested by the artefacts recovered from it. All the structures of the ruling family's complex were enclosed by a wall (Sali 1986: Fig. 10). The walls of different rooms were perfectly aligned east-west and north-south, and were all of uniform thickness (30 cm). House 16 was the kitchen and House 20 probably a cattle shed. There were cylindrical pit silos. Mud bricks of the Harappan standard (4:2:1) were used in the construction of these buildings. Important antiquities were found in the rooms, which indicate that this was the house of a very important person, probably the chieftain. This surmise gains strength from the symbolic burial in the complex.

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The excavations at Inamgaon (Pune district, Maharashtra) yielded over one hundred and thirty houses belonging to different cultural phases, all Chalcolithic. They are all mud structures and even dwelling pits have been unearthed (Dhavalikar et al. 1988). A few mud houses were also discovered at Daimabad and Navdatoli whereas those at Ahar were built of stone slabs.

These Chalcolithic communities were probably organized into chiefdoms. It has been observed that 'chiefdoms were a natural, inevitable development of the evolution of tribal societies where the techniques of subsistence are likely to produce a surplus which is available after maintaining the existing population' (Webb 1974: 368). A chiefdom has been defined as 'an autonomous political unit comprising a number of villages or communities under the permanent control of a permanent chief' (Carneiro 1984: 45). Moreover, in many chiefdoms the chief and the priest are one and the same person (Service 1972: 71).

Post-Harappan Chalcolithic cultures are characterized by a two-level site hierarchy comprising large and small villages, which indicates that these were ranked societies. On the basis of ethnographic analogues, it has been shown that the most important criterion of a chiefdom society is the existence of public structures such as fortifications, temples, granaries, etc. (Peebles and Kus 1977). An important example of public architecture is furnished by the granary at Inamgaon. This is a mud structure measuring about 10 sq m, divided into two parts by a low mud wall. It yielded no evidence of human habitation but contained many pit silos and round mud platforms for storage bins.

The Inamgaon granary was located in the central part of the principle habitation area (INM-I), by the side of the largest house in the settlement. The latter was a five-roomed complex in sharp contrast to the single-roomed units of the common people. In fact, it was the only multi-roomed structure of the Early Jorwe phase, and can therefore be identified as the residence of the most important person in the settlement, probably the ruling chief of the community, as is suggested by the location of the public granary next to his house (Fig. 6). The chief might have been collecting
taxes in the form of grain from the inhabitants and storing it in the granary. Such a practice would be very useful in times of droughts, which must have been as frequent then as now.

There is another example of public works in Inamgaon. The people had built a massive embankment and a channel diverting the flood water of the Ghod river. The construction of such hydraulic works implies a central administrative authority, not only for mustering communal effort but also for controlling the distribution of water (Wittfogel 1959). This only strengthens our hypothesis of a ruling chief at Inamgaon. The hypothesis is further supported by the unique burials in the largest house. The graves are probably those of the ruling chief and his scn and successor, which may indicate that the chieftainship was hereditary. At Daimabad, too, traces of an embankment and a fortification wall were noticed (Sali 1986: 149-157; Pl. LII).

6. PRABHAS WAREHOUSE

Another excellent example of a public structure is the warehouse at Prabhas Patan (Gujarat), better known as Somnath Patan (Fig.7). The Prabhas culture was a post-Harappan culture, but was derived from the Harappan and may better be termed a sub-Indus culture. The ancient site of Prabhas is located very close to the coast, and the excavation here revealed a very interesting structure built.
of stone rubble, which can be dated to about 1500 BC. For constructing it, a locally available stone called miliolite was used. The structure consists of squarish rooms, some of which are very small (1.5 sq m) and others a little larger (3.5 x 1.5 m). In most of the larger rooms, four large flat stones set in mud mortar to form a sort of platform, usually near the entrance, were found.

The Prabhas warehouse does not have a well-made floor, no post-holes and no remains of hearths or any other indications of human occupation. It is therefore clear that the structure was not used for residential purposes. The only noteworthy antiquities recovered from it include a steatite seal, a solitary flake of obsidian and two huge jars of red ware, one plain and the other painted, which suggest that the structure may have been used as a storehouse. This surmise is strengthened by the evidence recovered from similar structures uncovered at Mehrgarh (Pakistan) and at Tepe Yahya (Iran), which have been identified as storehouses (Lamberg-Karlovsky and Lamberg-Karlovsky 1972: 179). The Somnath structure can therefore be said to have served the same purpose. Since it is located on the sea-coast and is quite large, it may be identified as a warehouse where export cargo was stored.

A large structure consisting of parallel mud walls was recently exposed at Gilund (Rajasthan). This was, in all likelihood, a public granary of the Ahar culture (Shinde: personal communication), but the labyrinthine complex at Balathal (Rajasthan), also of the Ahar culture, though a public building, defies identification (Misra 1997).
Almost all the excavations of Chalcolithic sites, save the one at Inamgaon, were small-scale digs that exposed a few houses here and there, and it has therefore not been possible to study the Chalcolithic settlement system. We could do this at Inamgaon, where every minor artefact was recorded meticulously. The evidence shows that the first inhabitants of the site (Malwa culture: 1700-1500 BC) appear to have been quite prosperous, as their houses are more spacious (7 x 5 m) than those of their successors (5 x 3 m) (Fig. 8). These inhabitants were economically better off too, if the storages in their houses are any indication. Although multi-roomed structures were exceptions in this culture, but where they occur, they do suggest that the houses were occupied by joint families.

It has been noticed that rectangular houses indicate a year-round sedentary life, as the plan is so convenient that, whenever needed, additions could be made to it (as, for instance, for a newly married son). Such additional rooms do not have a separate kitchen, which is common in a joint family. An excellent example of this is the complex consisting of House Nos. 32, 33 and 54 at Daimabad (Sali 1986: 105 ff, Pl. XX) and those at Inamgaon (Dhavalikar et al. 1988: Vol. I, Fig. 9.4 and 9.26).

The Malwa as well as the Early Jorwe settlements at Inamgaon appear to have been planned, as the houses were situated almost in rows, with an open space (about 1.5 m wide) between them, which may have served as a road or lane. The settlement reminds us of the padas of the Kolams in the Deccan (Mandavkar 1966: 77-79).

The Inamgaon houses had low mud walls with thatched roofs; and each house was divided into two parts by a dwarf wall, with a kitchen and storage area in the smaller part. In the courtyard there was a large oval fire pit, probably for roasting hunted animals. Pit silos were located inside the hut as also in the courtyard, but the mud platform for storage bins was usually located inside the hut.

Both these systems are in use at present in Inamgaon village. Coarse grains like jowar (Sorghum bicolor) are stored in pit silos, and wheat in bins of wicker work because it cannot withstand

![Fig 8 A Malwa house, Inamgaon](image-url)
the underground heat. Presently, sand and thorny bushes are kept below the mud platform so that rodents cannot destroy the grain in the bin. In the excavation at Inamgaon, sand was found below the mud platform; the thorny bushes may have decomposed.

7. CRAFTSMEN'S QUARTER

A remarkable feature of the Jorwe settlement (both early and late) is that the houses of artisans such as potters, goldsmiths, lime-makers, lapidaries, ivory-carvers and so on were located on the western periphery of the principal habitation area, whereas those of well-to-do farmers were in the central part, around that of the ruling chief. This recalls the present-day village pattern in Maharashtra, in which the craftsmen's quarter is generally located near the entrance gate to the village whereas the village chief – the Patil – lives in the largest house in the middle of the village. Evidence also suggests that craftsmanship was hereditary. For example, a lapidary's house was later made smaller, probably because of adversity, and his successor was also a lapidary.

We carried out an interesting study at Inamgaon (Dhavalikar and Possehl 1974). Ethnographic parallels indicate that the population of an early farming village would be about 200 persons per hectare. Assuming this to be a fair estimate, the population of Chalcolithic Inamgaon during the Malwa (Period I: 1700-1500 BC) and Early Jorwe (Period II: 1500-1200 BC) cultures would be about 1,000 persons, as the total occupied area is about 5 ha., and about 650 persons in the Late Jorwe (Period III: 1200-900 BC). If a person requires about 2,000 calories a day, which can be obtained form less than half a kilogram of grain, then the daily requirement of one thousand persons would be 400 kilograms per day and 1,50,000 kilograms per year. A person requires 2 acres of land for subsistence. Hence, 2,000 acres of cultivable land (or 1,000 ha.) was required for the Early Jorwe settlement. This is exactly the amount of land which is under cultivation at present at Inamgaon.

The Late Jorwe phase (Period III: 1200-900 BC) marks a sudden deterioration in the economic condition of the people, which was in a large measure due to the drastic change in climate which became extremely arid. Agriculture suffered considerably and there was greater reliance on hunting small game, particularly deer and bustard for which there is a sanctuary near Inamgaon today.

The people could not afford large rectangular houses, but lived in small round huts (with diameters of about 1.5-2 m) (Fig. 9), which have been found in clusters of three or four or more (Fig. 10). Inside, there was a small circular fire-pit and another outside in the courtyard. There were no more pit silos and storage bins because of depleting agricultural production; all that was available could be stored in a four-legged jar. The house walls were extremely low as their function was not to support the roof, but to prevent rain water from entering the huts, as in the houses of the Gopals (buffalo breeders) at Wangdari, the neighbouring village, presently.

Such round huts can still be seen in and around Inamgaon and the surrounding areas. Just as rectangular structures indicate a sedentary existence, round huts point to a seasonally settled life (David 1971). It has been observed that the circular plan is more suitable for arid environments as it can withstand strong winds (Flannery 1972). L.R. Binford (1990: 123) has reached the same conclusion:
We note immediately a strong relationship between mobility pattern and house plan. Fully nomadic people tend to construct houses with a circular or semi-circular plan, as do semi-nomadic people, while both sedentary and semi-sedentary people favour rectangular house plans, although semi-circular house plans continue as a secondary plan.

It also appears that the people living in round huts represented a nuclear family (Fig. 10) and, what is more, ethnographical parallels suggest that they were likely to have been polygamous. Whenever the man acquired a new wife, he built a new hut for her. Thus, in every cluster of round huts, only one hut has a cooking facility. The other rooms, which were areas of female activity, indicate the number of wives (Dhavalikar 2002b). This system is still in vogue among the Kohalis of Vidarbha (Karve 1951: 112-13).

There are clusters of small round huts which are extremely flimsy. They do not have wooden posts but just a bundle of bamboo sticks bound at the upper end and spread on the ground, obliquely. Generally there are five or six huts in each cluster, their diameter varying from 1 to 1.5 m. Each hut was used for a different purpose: one for living, another as a kitchen, a third for storage and the remaining for sheep, goats, etc.

Several clusters of such huts were exposed at Walki (Pune district, Maharashtra) (Fig. 11). This was, in all likelihood, the farmstead of the landlords of Inamgaon, which is not far from Walki.

![Fig 9 A small, round hut, Inamgaon (Late Jorwe period)](image)

The function of each hut could be determined by analysis of the phosphorus and nitrogen content of the soil (Dhavalikar et al. 1990a; Joglekar and Kshirsagar 2000-01). Identical clusters of huts are today erected by the migrant labour who work seasonally at sugar mills in Maharashtra, which operate from October to March (Fig. 12). It has been noticed that the round plan of huts does not serve as an obstruction to wind, which is strong in arid and semi-arid regions.

The environment seems to have become extremely arid after the beginning of the first millennium BC (Dhavalikar 2002a: 144 ff). Consequently, more and more people became nomads.
practicing sheep-goat pastoralism (Khazanov 1986). The huts became extremely flimsy, irregular on plan, and even the floors were no longer well made. This was also the time when Megalithic horsemen from the south started their incursions into the northern Deccan. As a consequence, the Chalcolithic settlements were abandoned. Habitation occurred again only in the sixth to fifth centuries BC, which was the beginning of the Historical period.

Fig 10  Late Jorwe huts, Inamgaon (c. 1000-700 BC)

Fig 11  Plan of clusters of round huts, Walki (c. 1200 BC)
Fig 12 A modern hut, Walki

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